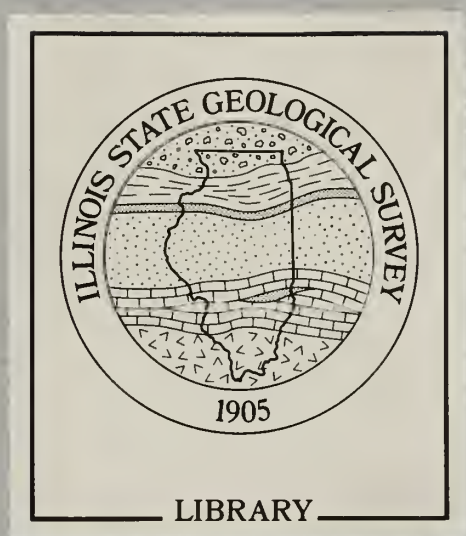


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— Rock-Eval data relating to oil-source potential of shales of New Albany Group (Devonian-Mississippian) in Illinois Basin (Chou, Mei-in M., et al.)

— Silurian pinnacle reef distribution in Illinois; model for hydrocarbon exploration (Whitaker, Stephen T.)

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— Fiscal year 1987 program report (University of Illinois, Water Resources Center)

— Transitions in Midwestern ground water law (Bowman, Jean A.)

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## Edgecliff Member

Onondaga Indian Nation and Kawkawlin metabentonites in surface Middle Devonian (late Onesquethawan) Grand Tower Formation of central Illinois (Conkin, James E.)

## Effingham Limestone Member

Diagenetic features in transgressive limestones suggest minor regressions in Upper Pennsylvanian cyclothems, Illinois Basin (Weibel, C. Pius)



electrical logging *see under* well-logging

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### Energy Shale

The relationship of clay fabric and roof collapse in the shales above the Herrin Coal, southern Illinois (Bodus, Theresa M.)

energy sources *see* coal; lignite; oil and gas fields; petroleum; uranium ores

engineering geology *see* earthquakes; environmental geology; geologic hazards; ground water; highways; impact statements; land subsidence; land use; mining geology; reservoirs; rock mechanics; shorelines; slope stability; soil mechanics; tunnels; underground installations; waste disposal

### engineering geology

*land subsidence*: Analysis of level survey data over mine subsidence events in Illinois, U.S.A.; abandoned and active mines (Powell, Larry R.)

— Crops and coal; Illinois Mine Subsidence Research Program (Illinois State Geological Survey)

— Laboratory characterization of immediate floor strata associated with coal seams in Illinois (Chugh, Yoginder P.)

— Use of a geographic information system to evaluate the potential for damage from subsidence of underground mines in Illinois (Hindman, C. A.)

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*petroleum engineering*: Preliminary reservoir characterization of a Chesterian Cypress Sandstone in Illinois Basin (Seyler, Beverly)

*reservoirs*: A new method for estimating future reservoir storage capacities (Singh, Krishan P.)

— Erosion and sedimentation; a threat to our water resources (Taylor, Gail)

— The need for a systematic lake sedimentation survey program in Illinois (Bhowmik, Nani G.)

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— The relationship of clay fabric and roof collapse in the shales above the Herrin Coal, southern Illinois (Bodus, Theresa M.)

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— Geochemical interactions of hazardous wastes with geological formations in deep-well systems (Roy, W. R., et al.)

— Ground water assessments; more than just reviewing data (McDonnell, John J.)

— Interpretation of tracer tests conducted in an areally extensive fracture in a northeastern Illinois dolomite (Shapiro, Allen M.)

— Overview of a hydrogeological study of fractured dolomite in northeastern Illinois (Nicholas, J. R.)

— Random Walk versus MOC (Vsgt, Peter J.)

— Reclamation of pyritic mine spoil using contaminated dredged material (Simmers, J. W., et al.)

— Remote sensing investigations at a hazardous waste landfill (Stohr, Christopher J., et al.)

— Siting a low-level radioactive waste disposal facility in Illinois; a GIS approach (Smith, Liss R., et al.)

### engineering geology—petroleum engineering

*hydraulic fracturing*: Characterization of fracture geometry and roof penetrations associated with stimulation treatments in coalbeds (Diamond, W. P.)

environmental geology *see* conservation; engineering geology; geologic hazards; impact statements; land use; pollution; reclamation; waste disposal

### environmental geology

*conservation*: A model for quantifying incentive payments for soil conservation in cropping regions subject to water erosion (Dumaday, Robert G.)

— Geographic information systems and natural resource issues at the state level (Risser, Paul G.)

— Impact of risk and planning horizons on the selection of soil conservation management systems (Venkataraman R., Ravi)

*geologic hazards*: Floods of March 1982 in Indiana, Ohio, Michigan, and Illinois (Glatfelter, Dale R.)

*land use*: Development of wetlands and water on coal mining operations in Illinois within the constraints of regulations; a regulatory authority perspective (Reising, J. W.)

— Geographic information systems and natural resource issues at the state level (Risser, Paul G.)

— Hydrology and sedimentology modeling on Illinois agricultural watersheds (Ewing, Loyd K.)

— Wetlands as a byproduct of surface mining; Midwest perspective (Klimstra, W. D.)

*pollution*: A field study of various sampling devices and their effects on volatile organic contaminants (Yeskis, Doug, et al.)

— Agricultural chemicals in rural, private water wells in Illinois; recommendations for a statewide survey (McKenna, Dennis P., et al.)

— Assessment of trace element body burdens due to projected coal utilization in the Illinois River basin (Gasper, John R.)

— Design of a sampling system for agricultural chemicals in rural, private, water-supply wells (Schock, Susan C., et al.)

— Hydrologic and geochemical factors affecting the chemistry of ground water in the vicinity of a reclaimed strip mine lake (Durham, Lisa A., et al.)

— Impact of risk and planning horizons on the selection of soil conservation management systems (Venkataraman R., Ravi)

— Infiltration and hydraulic conductivity of a compacted earthen liner (Albrecht, K. A.)

— Potential nitrate contamination of shallow ground water following chemical rehabilitation of a septic system (Bicki, Thomas J.)

*reclamation*: Development of wetlands and water on coal mining operations in Illinois within the constraints of regulations; a regulatory authority perspective (Reising, J. W.)

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— Wetland ecosystem development on a reclaimed surface coal mine in southern Illinois (Cole, Charles Andrew)

— Wetlands and water quality management in the Eastern Interior coal basin (Mitsch, W. J., et al.)

— Wetlands as a byproduct of surface mining; Midwest perspective (Klimstra, W. D.)

*waste disposal*: Nonradiological groundwater quality at low-level radioactive waste disposal sites (Goode, Daniel J.)

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### Equality Formation

Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley (Esling, Steven P., et al.)

— Stack unit mapping and Quaternary history Eddyville 7.5 minute quadrangle, southern Illinois (Henderson, Elizabeth Darrow)

— The Quaternary history of the lower Cache River valley, southern Illinois (Hughes, William Brian)

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*dip-slip faults*: Horseshoe Quarry, Shawneetown fault zone, Illinois (Nelson, W. John)

*reactivation*: Structural controls on the formation of the sub-Absaroka unconformity in the U.S. Eastern Interior basin (Greb, Stephen F.)

### faults—Interpretation

*fault zones*: Plum River fault zone (Ludvigson, Greg A.)

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### ferns—paleoecology

*Pennsylvanian*: Vegetational history of the Springfield Coal (Middle Pennsylvanian of Illinois) and distribution patterns of a tree-fern miospore, *Thymospora pseudothienensis*, based on miospore profiles (Mahaffy, James F.)

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### fluid inclusions—paleosalinity

*ore-forming fluids*: A study of the fluid inclusion, stable isotope and mineralogical char-



## folds—style

acteristics of the Denton fluorspar deposit, Cave-in-Rock, Illinois (Koellner, Mark S.)  
*stable isotopes*: A stable isotope and fluid inclusion study of minor upper mississippi valley-type sulfide mineralization in Iowa, Illinois, and Wisconsin (Kutz, Keith Brian)

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## folds—style

*anticlines*: Valmeyer Anticline of Monroe County, Illinois (Norby, Rodney D.)

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## Ford County—geophysical surveys

*remote sensing*: Use of soil and spectral properties for monitoring soil erosion (Weismiller, Richard A., et al.)

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- A large, well preserved specimen of the Middle Pennsylvanian lungfish *Conchopoma edesi* (Osteichthyes; Dipnoi) from Mazon Creek, Illinois, U.S.A. (Marshall, Charles R.)
- A new cephalopod with soft-parts from the Upper Carboniferous Francis Creek Shale of Illinois, USA (Allison, Peter E.)
- Designation of a new name and type for the Mazon Creek (Pennsylvanian, Francis Creek Shale) tanaidacean (Schram, Frederick R.)
- The monster of Illinois; paleontology and politics (Carman, Mary R.)
- The naming of the Tully Monster (Konecny, Jim)

## Fredonia Limestone Member

Depositional facies analysis of the Aux Vases (Mississippian) Formation from southeastern Missouri to southeastern Illinois (Cole, Robert D.)

**frost action** *see under* geomorphology; soil mechanics  
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**fuel resources** *see* coal; lignite; oil and gas fields; petroleum

## Fulton County—areal geology

*guidebook*: A guide to the geology of the Canton area, Fulton County (Reinertsen, David L.)

## Fulton County—paleontology

*Invertebrata*: The monster of Illinois; paleontology and politics (Carman, Mary R.)  
*problematic fossils*: The monster of Illinois; paleontology and politics (Carman, Mary R.)

## G

## Galena Dolomite

- Applied geology of the proposed site for the superconducting super collider (SSC) in Illinois (Kempton, John P., et al.)
- Catalog of cores from the sub-Galena Group in Illinois (Shaw, Thomas H.)

- Facies distribution within the Maquoketa and Galena-Platteville groups and their relationship to Ordovician structural history in north-eastern Illinois (Graese, Anne M.)
- Geological program to site the superconducting super collider in Illinois (Leighton, Morris W., et al.)
- Impact of dolomite and shale spoil materials on Illinois water quality; laboratory studies (Krapac, I. G., et al.)

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*guidebook*: A guide to the geology of the Shawneetown area, Gallatin County (Reinertsen, David L.)  
*maps*: Geologic map of the Shawneetown Quadrangle, Gallatin County, Illinois (Nelson, W. J.)

**gas inclusions** *see* fluid inclusions

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- coal*: The Illinois Basin Coal Sample Program; status and sample characterization (Harvey, Richard D.)
- organic materials*: Microbial methane in the shallow Paleozoic sediments and glacial deposits of Illinois, U.S.A. (Coleman, Dennis D., et al.)
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- trace elements*: Assessment of trace element body burdens due to projected coal utilization in the Illinois River basin (Gaspar, John R.)

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- Holocene*: Additional evidence for absence of Altonian glaciation in northeastern Illinois (Curry, B. Brandon)
- Pleistocene*: Quaternary aminostratigraphy of Mississippi Valley loess (Clark, Peter U., et al.)

## geochronology—racemization

*gastropods*: Quaternary aminostratigraphy of Mississippi Valley loess (Clark, Peter U., et al.)

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- changes of level*: Changes in coastal sedimentary dynamics resulting from water-level change and altered coastal geography (Chrzastowski, Michael J.)
- fluvial features*: Fluvial geomorphology of two contrasting tributaries of the Vermilion River, east-central Illinois (Stanke, Faith Alane)
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*loess*: Soil development and loess stratigraphy of the Midcontinental USA (Norton, L. D., et al.)

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- landform description*: Geologic features near Grand Tower, Illinois; the Devil's Backbone, the Devil's Bake Oven, and Fountain Bluff (Fraunfelder, George H.)
- Starved Rock, Illinois (Kolata, Dennis R.)

## geomorphology—fluvial features

- rivers*: Fluvial geomorphology of two contrasting tributaries of the Vermilion River, east-central Illinois (Stanke, Faith Alane)
- valleys*: Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley (Esling, Steven P., et al.)
- Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley; discussion (Leach, Elizabeth K.)
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## geomorphology—lacustrine features

*lakes*: Maps showing the bottom topography of the Chicago near-northside lake front (Schlee, J. S., et al.)

## geomorphology—processes

*sedimentation*: Sedimentation in the Illinois River valley and backwater lakes (Bhowmik, Nani G.)

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- magnetic surveys*: Comparison of archeomagnetic studies of suspected hearths from Koobi Fora, Africa with known hearths from Modoc, IL (Bellomo, R. J.)
- remote sensing*: Low-relief topographic enhancement in a Landsat snow-cover scene (Eyton, J. Ronald)
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- seismic surveys*: Major Proterozoic basement features of the eastern Midcontinent of North America revealed by recent COCORP profiling (Pratt, T., et al.)
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**Gilmore City Formation**

Two new multiarmed Mississippian asteroids (Echinodermata) from the Upper Mississippi Valley (Blake, Daniel B.)

— Two new multiarmed Paleozoic (Mississippian) asteroids (Echinodermata) and some paleobiologic implications (Blake, Daniel B.)

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*deposition:* Age, stratigraphic position, and significance of the Lemont Drift, northeastern Illinois (Johnson, W. Hilton)

— Source and origin of Roxana Silt and middle Wisconsinan midcontinent glacial activity (Johnson, W. Hilton)

— Wedron section, Wedron, Illinois; concepts of Woodfordian glaciation in Illinois (Johnson, W. Hilton, et al.)

*drainage patterns:* The Quaternary history of the lower Cache River valley, southern Illinois (Hughes, William Brian)

*glacial extent:* Absence of Altonian glaciation in Illinois (Curry, B. Brandon)

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**Glasford Formation**

Absence of Altonian glaciation in Illinois (Curry, B. Brandon)

— Hydrogeology, groundwater chemistry, and resistivity of a contaminated shallow aquifer system in southern Bond County, Illinois (Stafford, Mark R.)

— Regional Quaternary geology of western Clark County, Illinois (Curry, B. Brandon, et al.)

— Results of hydrologic research at a low-level radioactive-waste disposal site near Sheffield, Illinois (Ryan, Barbara J.)

**Golconda Group**

Facies, depositional and diagenetic environments of the Golconda Group (Mississippian) in southwestern Illinois and southeastern Missouri (Harris, Clayton D.)

**Grand Tower Limestone**

Late Onesquethawan metabentonite in the Grand Tower Formation of central Illinois and its correlation (Conkin, James E.)

— Onondaga Indian Nation and Kawkawlin metabentonites in surface Middle Devonian (late Onesquethawan) Grand Tower Formation of central Illinois (Conkin, James E.)

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*Invertebrata:* Great Lakes, great trips (Zeitner, June Culp)

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*reefs:* Silurian seascapes; water depth, clinotherms, reef geometry, and other motifs; a critical review of the Silurian reef model (Shaver, Robert H.)

**Great Lakes region—stratigraphy**

*Pleistocene:* The Shorewood Till problem of Illinois and Wisconsin (Rovey, C. W., II)

**Greenup Limestone**

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*field studies:* Assessing the validity of the channel model of fracture aperture under field conditions (Shapiro, Allen M.)

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*fluctuations:* Interpretation of oscillatory water levels in observation wells during aquifer tests in fractured rock (Shapiro, Allen M.)

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*fractures:* Identifying fracture interconnections between boreholes using natural temperature profiling; I, Conceptual basis (Silliman, S.)

*unsaturated zone:* Exchange and transport of 14-carbon dioxide in the unsaturated zone (Striegl, Robert G.)

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*Bureau County:* Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

— Leachate movement through unsaturated sand at a low-level radioactive-waste disposal site in northwestern Illinois (Mills, Patrick C.)

— Water and tritium movement in the saturated zone (Healy, Richard W., et al.)

— Water balance at a low-level radioactive-waste disposal site (Healy, Richard W., et al.)

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*Champaign County:* Hydrogen peroxide treatment of septic systems and its negative effects on shallow ground water (Bicki, Thomas J.)

*Cook County:* Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

— Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

— Impact of dolomite and shale spoil materials on Illinois water quality; laboratory studies (Krapac, I. G., et al.)

— Water-level trends and pumpage in the Cambrian and Ordovician aquifers in the Chicago region, 1980-1985 (Sasman, R. T., et al.)

*Crawford County:* Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

*De Kalb County:* Geological-geotechnical studies for siting the superconducting super collider in Illinois; regional summary (Graese, A. M., et al.)

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— Impact of dolomite and shale spoil materials on Illinois water quality; laboratory studies (Krapac, I. G., et al.)

— Public ground-water supplies in DuPage County (Woller, Dorothy M., et al.)

*Illinois:* A field study of various sampling devices and their effects on volatile organic contaminants (Yeskis, Doug, et al.)

— Agricultural chemicals in rural, private water wells in Illinois; recommendations for a statewide survey (McKenna, Dennis P., et al.)

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— Ground water assessments; more than just reviewing data (McDonnell, John J.)

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— Infiltration and hydraulic conductivity of a compacted earthen liner (Albrecht, K. A.)

— Microbial methane in the shallow Paleozoic sediments and glacial deposits of Illinois, U.S.A. (Coleman, Dennis D., et al.)

— Nonradiological groundwater quality at low-level radioactive waste disposal sites (Goode, Daniel J.)

— Potential nitrate contamination of shallow ground water following chemical rehabilitation of a septic system (Bicki, Thomas J.)

— Quality of water from public-supply wells in principal aquifers of Illinois, 1984-87 (Voelker, David C.)

— Random Walk versus MOC (Vagt, Peter J.)

— Reclamation of pyritic mine spoil using contaminated dredged material (Simmers, J. W., et al.)

— Relations between precipitation and shallow groundwater in Illinois (Changnon, Stanley A., et al.)

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— Transitions in Midwestern ground water law (Bowman, Jean A.)

— Water-quality data for the observation-well network in Illinois, 1985-87 (Voelker, David C., et al.)

— Water-resources activities of the U.S. Geological Survey in Illinois, 1988 (Garrelts, Mary L.)

*Jackson County:* Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

*Kane County:* Application of seismic refraction methods to evaluate regional ground-water resources (Laymon, Douglas E.)

— Geological-geotechnical studies for siting the superconducting super collider in Illinois; regional summary (Graese, A. M., et al.)

— Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

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*Knox County*: Public ground-water supplies in Knox County (Woller, Dorothy M., et al.)

*Lake County*: Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

*Lawrence County*: Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

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*Macoupin County*: Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

— Investigation of failure mechanisms and migration of organic chemicals at Wilsonville, Illinois (Herzog, Beverly L., et al.)

*Madison County*: Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

— Gradient control wells for aquifer remediation; a modeling and field case study (Cosgrave, Timothy, et al.)

*McHenry County*: Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

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*Perry County*: Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

*Randolph County*: Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

*Saint Clair County*: Groundwater level analysis by computer modeling American Bottoms groundwater study (Ritchey, Joseph D., et al.)

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## Grove Church Shale

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## Grundy County—paleontology

*Arthropoda*: Designation of a new name and type for the Mazon Creek (Pennsylvanian, Francis Creek Shale) tanaidacean (Schram, Frederick R.)

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*Pennsylvanian*: A new medullosan pollen organ (Stidd, Benton M.)

— Seeds and pollen organs from the Mazon Creek flora of northeastern Illinois (Crane, Peter R.)

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## Hagarstown Member

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## Haney Formation

Two new multiarmed Mississippian asteroids (Echinodermata) from the Upper Mississippi Valley (Blake, Daniel B.)

— Two new multiarmed Paleozoic (Mississippian) asteroids (Echinodermata) and some paleobiologic implications (Blake, Daniel B.)

## Hardin County—economic geology

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— Stable isotope systematics in the Illinois-Kentucky fluorspar district (Jones, Henry D.)

*petroleum*: Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

## Hardin County—paleontology

*Ostracoda*: Revision of the Late Mississippian new ostracode genera in Coryell and Johnson 1939 (Sohn, I. G.)

## Hardin County—stratigraphy

*Mississippian*: Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

## Hardinsburg Formation

Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

## Henderson County—hydrogeology

*hydrology*: Assessment of processes affecting low-flow water quality of Cedar Creek, west-central Illinois (Schmidt, Arthur R., et al.)

## Henry Formation

Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley (Esling, Steven P., et al.)

— The Quaternary history of the lower Cache River valley, southern Illinois (Hughes, William Brian)

## Herrin Coal Member

Paleoecology and paleoenvironment of the Brereton Limestone (Pennsylvanian, Desmoinesian) in a portion of the Illinois Basin (Wissinger, Diane E.)

— The relationship of clay fabric and roof collapse in the shales above the Herrin Coal, southern Illinois (Bodus, Theresa M.)

— Vegetational history of the Springfield Coal (Middle Pennsylvanian of Illinois) and distribution patterns of a tree-fern miospore,

*Thymospora pseudothiessenii*, based on miospore profiles (Mahaffy, James F.)

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## Hunton Megagroup

A paleotopographic approach to the Silurian reefs of the Illinois Basin (Thomas, Gilbert E., et al.)

— Paleo-highs may be key to deeper production (Davis, Harold G.)

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*ground water*: Directional aperture estimates derived from single fracture hydraulic and tracer tests in a fractured dolomite (Silliman, Stephen E.)

— Instrumentation and field methods for hydraulic and tracer tests in discrete fractures in northeastern Illinois (deVries, M. P.)

— Potential nitrate contamination of shallow ground water following chemical rehabilitation of a septic system (Bicki, Thomas J.)

— Quality of water from public-supply wells in principal aquifers of Illinois, 1984-87 (Voelker, David C.)

— Relations between precipitation and shallow groundwater in Illinois (Chaugnon, Stanley A., et al.)

— Using hydraulic and tracer tests to identify spatial heterogeneity of transmissivity in an areally extensive fracture (Shapiro, Allen M., et al.)

— Water-quality data for the observation-well network in Illinois, 1985-87 (Voelker, David C., et al.)

*hydrology*: Hydrology and sedimentology modeling on Illinois agricultural watersheds (Ewing, Loyd K.)

— Sedimentation in the Illinois River valley and backwater lakes (Bhowmik, Nani G.)

— Sedimentology and historical sedimentation rates of a delta in a Mississippi River oxbow lake, southern Illinois (McGovern, Gregory J.)

— Summary of biological, chemical, and morphological characterizations of 33 surface-mine lakes in Illinois and Missouri (Jones, D. W., et al.)

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*computer programs*: Random Walk versus MOC (Vagt, Peter J.)

## hydrogeology—instruments

*samplers*: Design of a sampling system for agricultural chemicals in rural, private, water-supply wells (Schock, Susan C., et al.)

## hydrogeology—theoretical studies

*ground water*: Interpretation of oscillatory water levels in observation wells during aquifer tests in fractured rock (Shapiro, Allen M.)

hydrology see ground water  
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## hydrology—methods

*mathematical methods:* Empirical orthogonal function analysis of hydrologic data (Hsieh, Chang-hsin)

## hydrology—surveys

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— Microclimate, evapotranspiration, and tritium release by plants (deVries, M. Peter)

— Results of hydrologic research at a low-level radioactive-waste disposal site near Sheffield, Illinois (Ryan, Barbara J.)

— Runoff and land modification (Gray, John R.)

— Seepage through a hazardous-waste trench cover (Healy, R. W.)

— Water and tritium movement in the unsaturated zone (Mills, Patrick C.)

— Water balance at a low-level radioactive-waste disposal site (Healy, Richard W., et al.)

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*Cedar Creek:* Assessment of processes affecting low-flow water quality of Cedar Creek, west-central Illinois (Schmidt, Arthur R., et al.)

*Cook County:* Evaluating bioavailability of neutral organic chemicals in sediments; a confined disposal facility case study (Clarke, Joan U., et al.)

*Du Page County:* A preliminary assessment of  $^{239,240}\text{Pu}$  concentrations in a stream near Argonne National Laboratory (Singh, H.)

*Illinois:* A new method for estimating future reservoir storage capacities (Singh, Krishan P.)

— Development of wetlands and water on coal mining operations in Illinois within the constraints of regulations; a regulatory authority perspective (Reising, J. W.)

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— Hydrology and sedimentology modeling on Illinois agricultural watersheds (Ewing, Loyd K.)

— Water-resources activities of the U.S. Geological Survey in Illinois, 1988 (Garrelts, Mary L.)

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*Illinois River valley:* Sedimentation in the Illinois River valley and backwater lakes (Bhowmik, Nani G.)

*Lake Decatur:* Sedimentation and hydrologic processes in Lake Decatur and its watershed (Fitzpatrick, William P., et al.)

*Lake Ellyn:* Suspended sediment and metals removal from urban runoff by a small lake (Striegl, Robert G.)

*Lake Michigan:* Maps showing the bottom topography of the Chicago near-northside lake front (Schlee, J. S., et al.)

*Mississippi River:* Waste from the water treatment plant at Alton and its impact on the Mississippi River (Evans, Ralph, et al.)

*Vermilion River:* Fluvial geomorphology of two contrasting tributaries of the Vermilion River, east-central Illinois (Stanke, Faith Alane)

hydrothermal alteration *see under* processes under metasomatism

## I

Ice ages *see* glacial geology

Igneous rocks *see* fluid inclusions; magmas; metamorphic rocks; metasomatism; phase equilibria

*see under* petrology

Illinois No. 6 Coal

Sulfur compounds in coals containing multiple heteroatoms (Winans, Randall E., et al.)

Impact statements *see under* environmental geology under De Kalb County; Kane County; Kendall County

Incertae sedis *see* problematic fossils

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Intrusions *see* metasomatism

Invertebrata *see* Arthropoda; Echinodermata; Mollusca; Ostracoda; problematic fossils

Invertebrata—faunal studies

*Pennsylvanian:* The monster of Illinois; paleontology and politics (Carman, Mary R.)

Invertebrates *see* brachiopods; mollusks

Invertebrates—paleoecology

*Pennsylvanian:* Paleocology and paleoenvironment of the Brereton Limestone (Pennsylvanian, Desmoinesian) in a portion of the Illinois Basin (Wissinger, Diane E.)

Iroquois County—engineering geology

*slope stability:* An active landslide in Iroquois County, Illinois; conclusions (Bradford, Susan Carol, et al.)

Isostasy *see* changes of level

Isotope dating *see* absolute age

Isotopes *see* absolute age; geochronology

Isotopes—base metals

*analysis:* A stable isotope and fluid inclusion study of minor upper mississippi valley-type sulfide mineralization in Iowa, Illinois, and Wisconsin (Kutz, Keith Brian)

Isotopes—beryllium

*radioactive tracers:* Atmospheric deposition of  $^7\text{Be}$  and  $^{10}\text{Be}$  (Brown, Louis, et al.)

Isotopes—carbon

*C-14:* Exchange and transport of 14-carbon dioxide in the unsaturated zone (Striegl, Robert G.)

Isotopes—fluorspar

*stable isotopes:* A study of the fluid inclusion, stable isotope and mineralogical characteristics of the Denton fluorspar deposit, Cave-in-Rock, Illinois (Koelner, Mark S.)

— Stable isotope systematics in the Illinois-Kentucky fluorspar district (Jones, Henry D.)

Isotopes—lead

*radioactive isotopes:* Anomalous Mississippi Valley leads; another suggestion (Millen, Timothy M., et al.)

Isotopes—plutonium

*Pu-239:* A preliminary assessment of  $^{239,240}\text{Pu}$  concentrations in a stream near Argonne National Laboratory (Singh, H.)

Isotopes—pollution

*radioactive isotopes:* Gamma-ray activity in bituminous, subbituminous and lignite coals (Barber, D. E.)

Isotopes—sedimentary rocks

*ratios:* Petrology of fault-related diagenetic features in the Paleozoic carbonate rocks of the Plum River fault zone, eastern Iowa and Northwest Illinois (Ludvigson, Gregory Alan)

— Water-rock interaction history of regionally extensive dolomites of the Burlington-Keokuk Formation (Mississippian); isotopic evidence (Banner, J. L., et al.)

Isotopes—water

*tracers:* Natural element and isotope separations by phase transformations (Wetzel, K.)

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Jackson County—arcual geology

*guidebook:* A guide to the geology of the Wolf Lake area, Union and Jackson counties (Reinertsen, David L.)

Jackson County—economic geology

*petroleum:* Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

Jackson County—geophysical surveys

*well-logging:* Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

Jackson County—hydrogeology

*ground water:* Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

Jackson County—stratigraphy

*Mississippian:* Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

*Paleozoic:* Geologic features near Grand Tower, Illinois; the Devil's Backbone, the Devil's Bake Oven, and Fountain Bluff (Fraunfelter, George H.)

Jasper County—arcual geology

*Newton Illinois:* Guide to the geology of the Newton area, Jasper County; geological science field trip (Weibel, C. Pius, et al.)

Jeffersonville Limestone

Onondaga Indian Nation and Kawkawlin metabentonites in surface Middle Devonian (late Onesquethawan) Grand Tower Formation of central Illinois (Conkin, James E.)

Jo Daviess County—arcual geology

*Savanna Illinois:* Guide to the geology of the Savanna area, Carroll and Jo Daviess counties (Reinertsen, David L.)

Johnson County—economic geology

*petroleum:* Petrography and reservoir properties of Chesterian (Upper Mississippian)



## Johnson County—geomorphology

arenites, southern Illinois (Carozzi, Albert V.)

## Johnson County—geomorphology

*fluvial features:* The Cache Valley of southern Illinois (Masters, John M.)

## Johnson County—stratigraphy

*Mississippian:* Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

*Pennsylvanian:* Fluvial-deltaic deposits (Caseyville and Abbott formations) of Early Pennsylvanian age exposed along the Pounds Escarpment, southern Illinois (Jacobson, Russell J.)

— Tidal influence in an upper Caseyville (Lower Pennsylvanian) Gilbert-type deltaic sequence, southern Illinois (Kvale, Erik P.)

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— Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley; reply (Esling, S. P., et al.)

## Joppa Limestone Member

Depositional facies analysis of the Aux Vases (Mississippian) Formation from southeastern Missouri to southeastern Illinois (Cole, Robert D.)

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## Kane County—areal geology

*regional:* Applied geology of the proposed site for the superconducting super collider (SSC) in Illinois (Kempton, John P., et al.)

## Kane County—economic geology

*water resources:* Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

## Kane County—engineering geology

*tunnels:* Disposal alternatives for material to be excavated from the proposed site of the superconducting super collider in Illinois (Curran, L. M., et al.)

— Geological-geotechnical studies for siting the superconducting super collider in Illinois; regional summary (Graese, A. M., et al.)

*underground installations:* Disposal alternatives for material to be excavated from the proposed site of the superconducting super collider in Illinois (Curran, L. M., et al.)

— Geological program to site the superconducting super collider in Illinois (Leighton, Morris W., et al.)

— Relationship between horizontal stresses and geologic anomalies in two coal mines in southern Illinois (Ingram, David K.)

— Use of a geographic information system to optimize siting of the superconducting super collider in Illinois (Gross, David L., et al.)

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*conservation:* Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

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*pollution:* Impact of dolomite and shale spoil materials on Illinois water quality; laboratory studies (Krapac, I. G., et al.)

## Kane County—geophysical surveys

*seismic surveys:* Application of seismic refraction methods to evaluate regional ground-water resources (Laymon, Douglas E.)

*well-logging:* Comparison of spectral gamma ray (SGR) well logging data with instrumental neutron activation analysis (INAA) data for rock types in northern Illinois (Gendron, Craig R., et al.)

## Kane County—hydrogeology

*hydrology:* Impact of dolomite and shale spoil materials on Illinois water quality; laboratory studies (Krapac, I. G., et al.)

## Kankakee County—paleontology

*Invertebrata:* The monster of Illinois; paleontology and politics (Carman, Mary R.)

*Pisces:* A large, well preserved specimen of the Middle Pennsylvanian lungfish *Conchopmacedes* (Osteichthyes; Dipnoi) from Mazon Creek, Illinois, U.S.A. (Marshall, Charles R.)

*problematic fossils:* The monster of Illinois; paleontology and politics (Carman, Mary R.)

## Kankakee County—stratigraphy

*Ordovician:* Ordovician-Silurian unconformity at Kankakee River State Park, Illinois (Mikulic, Donald G.)

*Silurian:* Ordovician-Silurian unconformity at Kankakee River State Park, Illinois (Mikulic, Donald G.)

## Kawkaulin Metabentonite

Onondaga Indian Nation and Kawkaulin metabentonites in surface Middle Devonian (late Onesquethawan) Grand Tower Formation of central Illinois (Conkin, James E.)

## Kendall County—areal geology

*regional:* Applied geology of the proposed site for the superconducting super collider (SSC) in Illinois (Kempton, John P., et al.)

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## Kendall County—geophysical surveys

*well-logging:* Comparison of spectral gamma ray (SGR) well logging data with instrumental neutron activation analysis (INAA) data for rock types in northern Illinois (Gendron, Craig R., et al.)

## Kendall County—hydrogeology

*hydrology:* Impact of dolomite and shale spoil materials on Illinois water quality; laboratory studies (Krapac, I. G., et al.)

## Keokuk Limestone

Regional dolomitization of shelf carbonates in the Burlington-Keokuk Formation (Mississippian), Illinois and Missouri; constraints from cathodoluminescent zonal stratigraphy (Cander, H. S., et al.)

— Water-rock interaction history of regionally extensive dolomites of the Burlington-Keokuk Formation (Mississippian); isotopic evidence (Banner, J. L., et al.)

## Kewanee Group

A guide to the geology of the Forrest area, Livingston County (Reinertsen, David L., et al.)

## Knox County—economic geology

*water resources:* Public ground-water supplies in Knox County (Woller, Dorothy M., et al.)

## Knox County—hydrogeology

*hydrology:* Assessment of processes affecting low-flow water quality of Cedar Creek, west-central Illinois (Schmidt, Arthur R., et al.)

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## La Salle County—geomorphology

*erosion features:* Starved Rock, Illinois (Kolata, Dennis R.)

*frost action:* Anatomy and sedimentary environments of a late Wisconsinan thaw lake in north-central Illinois (Hajic, Edwin R.)

## La Salle County—stratigraphy

*Holocene:* Taphonomy and paleoecology of stag-moose (*Cervalces scotti*) from thermokarst deposits, Tonica, north-central Illinois (Graham, R. W.)

*Pennsylvanian:* Cyclothems in the Carbondale Formation (Pennsylvanian; Desmoinesian Series) of La Salle County, Illinois (Trask, C. Brian)

*Pleistocene:* Palynological and plant-macrofossil studies of the Tonica thermokarst, LaSalle County, Illinois (Grimm, Eric C.)

— Wedron section, Wedron, Illinois; concepts of Woodfordian glaciation in Illinois (Johnson, W. Hilton, et al.)

lacustrine features *see under* geomorphology

## Lake County—areal geology

*guidebook:* Park Ridge-North Shore area; Cook and Lake counties (Reinertsen, David L.)



**Lake County—economic geology**

*water resources:* Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

**Lake County—engineering geology**

*shorelines:* Civic solution; Lake Forest shoreline restoration (Fischbach, John P.)

**Lake County—environmental geology**

*conservation:* Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

*pollution:* Lake Michigan water levels, geologic data and public policy in Illinois (Collinson, Charles)

*lakes see under lacustrine features under geomorphology*

*land subsidence see under engineering geology; mining geology*

*see under engineering geology under data processing*

*land use see conservation; pollution; reclamation see under environmental geology under Cook County; Macon County*

*see under environmental geology*

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**Lawrence County—environmental geology**

*waste disposal:* Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

**Lawrence County—hydrogeology**

*ground water:* Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

**Lawson Shale**

The relationship of clay fabric and roof collapse in the shales above the Herrin Coal, southern Illinois (Bodus, Theresa M.)

**lead—Isotopes**

*Pb-206/Pb-204:* Anomalous Mississippi Valley leads; another suggestion (Millen, Timothy M., et al.)

— Stable isotope systematics in the Illinois-Kentucky fluorspar district (Jones, Henry D.)

*ratios:* Petrology of fault-related diagenetic features in the Paleozoic carbonate rocks of the Plum River fault zone, eastern Iowa and Northwest Illinois (Ludvigson, Gregory Alan)

*lead ores see under economic geology*

*see lead-zinc deposits*

*lead-zinc deposits see under economic geology*

*see lead ores*

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**Lemont Drift**

Age, stratigraphic position, and significance of the Lemont Drift, northeastern Illinois (Johnson, W. Hilton)

**lignite—geochemistry**

*radioactive isotopes:* Gamma-ray activity in bituminous, subbituminous and lignite coals (Barber, D. E.)

**Lingle Limestone**

Onondaga Indian Nation and Kawkawlin metabentonites in surface Middle Devonian

(late Onesquethawan) Grand Tower Formation of central Illinois (Conkin, James E.)

*liquid inclusions see fluid inclusions*

**Livingston County—areal geology**

*Forrest Illinois:* A guide to the geology of the Forrest area, Livingston County (Reinertsen, David L., et al.)

**Livingston County—economic geology**

*water resources:* Public ground-water supplies in Livingston County (Woller, Dorothy M., et al.)

**Livingston Limestone Member**

Depositional environment of the Livingston Limestone Member of the Bond Formation near Fairmount, Vermilion County, Illinois (Gager, Barry)

*loess see under clastic sediments under sediments*

*see under eolian features under geomorphology*

**Loveland Loess**

Soil development and loess stratigraphy of the Midcontinental USA (Norton, L. D., et al.)

— The Quaternary history of the lower Cache River valley, southern Illinois (Hughes, William Brian)

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**Macon County—environmental geology**

*land use:* Sedimentation and hydrologic processes in Lake Decatur and its watershed (Fitzpatrick, William P., et al.)

**Macoupin County—environmental geology**

*pollution:* Investigation of failure mechanisms and migration of organic chemicals at Wilsonville, Illinois (Herzog, Beverly L., et al.)

*waste disposal:* Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

**Macoupin County—hydrogeology**

*ground water:* Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

**Madison County—environmental geology**

*pollution:* Gradient control wells for aquifer remediation; a modeling and field case study (Cosgrave, Timothy, et al.)

*waste disposal:* Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

— Waste from the water treatment plant at Alton and its impact on the Mississippi River (Evans, Ralph, et al.)

**Madison County—hydrogeology**

*ground water:* Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

**magmas—geochemistry**

*isotopes:* Natural element and isotope separations by phase transformations (Wetzel, K.)

*magnetic surveys see under geophysical surveys*

*maps see under areal geology under Gallatin County*

*see under geomorphology under Cook County*

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**maps—cartography**

*automatic cartography:* Use of a GIS as a tool for geologic mapping and analysis (Trewor-gy, Colin)

**Maquoketa Formation**

Application of seismic refraction methods to evaluate regional ground-water resources (Laymon, Douglas E.)

— Facies distribution within the Maquoketa and Galena-Platteville groups and their relationship to Ordovician structural history in northeastern Illinois (Graese, Anne M.)

— Shatter cones and other shock effects at Des Plaines, Illinois; evidence for meteoroid impact (McHone, John F., et al.)

— Silurian pinnacle reef distribution in Illinois; model for hydrocarbon exploration (Whitaker, Stephen T.)

**Marshall County—environmental geology**

*reclamation:* Illinois barren longwall mine waste, fifty years after abandonment (Szafoni, Diane, et al.)

**Massac County—economic geology**

*mineral resources:* Developing a geologic database for assessing mineral resource potential of the Paducah Quadrangle (Pool, Robert R., et al.)

— Present status of the Paducah CUSMAP project (Johnson, Bruce R., et al.)

**Massac County—geomorphology**

*fluvial features:* The Cache Valley of southern Illinois (Masters, John M.)

**Massac County—stratigraphy**

*Quaternary:* Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley (Esling, Steven P., et al.)

— Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley; discussion (Leach, Elizabeth K.)

— Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley; reply (Esling, S. P., et al.)

*mathematical geology see data processing*

**Mattoon Formation**

Stratigraphy, depositional history, and brachiopod paleontology of Virgilian strata of east-central Illinois (Weibel, Carl Pius)

**McHenry County—economic geology**

*water resources:* Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

**McHenry County—environmental geology**

*conservation:* Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

**McLeansboro Group**

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## Mercer County—hydrogeology

### Mercer County—hydrogeology

*hydrology:* Assessment of processes affecting low-flow water quality of Cedar Creek, west-central Illinois (Schmidt, Arthur R., et al.)

*metal ores see* base metals; lead ores; lead-zinc deposits; uranium ores

*see under* economic geology

*metallurgy see* mineral deposits, genesis

### metals—geochemistry

*sediments:* Suspended sediment and metals removal from urban runoff by a small lake (Striegl, Robert G.)

*metamorphic rocks see* metasomatism

### metamorphic rocks—metasedimentary rocks

*composition:* Nature and origin of potassic alteration of the Ordovician Spechts Ferry Formation in the Upper Mississippi Valley (Matthews, James Coert)

*metamorphism see* metamorphic rocks; metasomatism

*metasomatic rocks see* metamorphic rocks; metasomatism

### metasomatism—processes

*hydrothermal alteration:* Nature and origin of potassic alteration of the Ordovician Spechts Ferry Formation in the Upper Mississippi Valley (Matthews, James Coert)

### mineral deposits, genesis—base metals

*sedimentary processes:* A stable isotope and fluid inclusion study of minor upper mississippi valley-type sulfide mineralization in Iowa, Illinois, and Wisconsin (Kutz, Keith Brian)

### mineral deposits, genesis—fluorspar

*ore-forming fluids:* A study of the fluid inclusion, stable isotope and mineralogical characteristics of the Denton fluorspar deposit, Cave-in-Rock, Illinois (Koellner, Mark S.)

*mineral resources see* metal ores

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### minerals—miscellaneous minerals

*mineral localities:* Great Lakes, great trips (Zeitner, June Culp)

### minerals—sulfides

*galena:* Galena from mississippi valley-type deposits (Lasmanis, Raymond)

*mining geology see under* engineering geology

### mining geology—land subsidence

*programs:* Crops and coal; Illinois Mine Subsidence Research Program (Illinois State Geological Survey)

*underground mining:* Use of a geographic information system to evaluate the potential for damage from subsidence of underground mines in Illinois (Hindman, C. A.)

### mining geology—methods

*underground mining:* Laboratory characterization of immediate floor strata associated with coal seams in Illinois (Chugh, Yoginder P.)

### Mint Creek Limestone

Stratigraphy, depositional history, and brachiopod paleontology of Virgilian strata of east-central Illinois (Weibel, Carl Pius)

*microspores see under* palynomorphs

*Mississippian see under* stratigraphy under Hardin County; Jackson County; Johnson County; Randolph County; Union County

*Mollusca see under* paleontology

### Mollusca—Cephalopoda

*Pennsylvanian:* A new cephalopod with soft-parts from the Upper Carboniferous Francis Creek Shale of Illinois, USA (Allison, Peter E.)

### mollusks—biogeography

*Quaternary:* Molluscan faunal changes in the Lake Michigan Basin during the past 11,000 years (Miller, Barry B.)

### Monroe County—stratigraphy

*Ordovician:* Lower Ordovician conodonts from the Shakopee Dolomite (upper Prairie du Chien Group) in southwestern Illinois (Shaw, T. H., et al.)

*Paleozoic:* Valmeyer Anticline of Monroe County, Illinois (Norby, Rodney D.)

### Morgan County—soils

*maps:* Soil survey of Morgan and Scott counties, Illinois (Gotsch, K. A.)

### Mount Simon Sandstone

Geochemical anomalies and sulfur isotope systematics of Upper Cambrian clastics in the Midcontinent; relation to ore fluid movement (Mosier, Elwin L., et al.)

— Geochemical interactions of hazardous wastes with geological formations in deep-well systems (Roy, W. R., et al.)

— Potassic diagenesis of Cambrian sandstones and Precambrian granitic basement in UPH-3 deep hole, Upper Mississippi Valley, U.S.A. (Duffin, Michael E., et al.)

*museums see* survey organizations

### museums—paleontology

*Smithsonian Institution:* Fossil collection serves as link to ancient Paleozoic forests (Harney, Thomas)

## N

*natural gas see* oil and gas fields

*neotectonics see* changes of level; tectonics

### New Albany Shale

Rock-Eval data relating to oil-source potential of shales of New Albany Group (Devonian-Mississippian) in Illinois Basin (Chou, Mei-in M., et al.)

— The New Albany Shale; potential source of brines for the main-stage MVT mineralization in the Cave-in-Rock District, Illinois-Kentucky (Furman, F. C., et al.)

### Newton Cyclothem

Guide to the geology of the Newton area, Jasper County; geological science field trip (Weibel, C. Pius, et al.)

### Newton Limestone

Stratigraphy, depositional history, and brachiopod paleontology of Virgilian strata of east-central Illinois (Weibel, Carl Pius)

*nonmetal deposits see* fluorspar

*North America see* Great Lakes region; United States

### North America—stratigraphy

*Pleistocene:* Eastern North American land snail communities in the Pleistocene (Frest, Terrence J.)

### North America—structural geology

*tectonics:* Structural controls on the formation of the sub-Absaroka unconformity in the U.S. Eastern Interior basin (Greb, Stephen F.)

### North America—tectonophysics

*crust:* Major Proterozoic basement features of the eastern Midcontinent of North America revealed by recent COCORP profiling (Pratt, T., et al.)

### North Vernon Limestone

Onondaga Indian Nation and Kawkawlin metabentonites in surface Middle Devonian (late Onesquethawan) Grand Tower Formation of central Illinois (Conkin, James E.)

*Northern Hemisphere see* North America

## O

*oil see* petroleum

*oil and gas fields see* petroleum

*see under* economic geology under Saline County

### Omega Limestone

Stratigraphy, depositional history, and brachiopod paleontology of Virgilian strata of east-central Illinois (Weibel, Carl Pius)

### Onondaga Limestone

Onondaga Indian Nation and Kawkawlin metabentonites in surface Middle Devonian (late Onesquethawan) Grand Tower Formation of central Illinois (Conkin, James E.)

*Ordovician see under* stratigraphy under Kankakee County; Monroe County; Will County

*organic materials see* lignite; petroleum

### organic materials—geochemistry

*ground water:* Leachate movement through unsaturated sand at a low-level radioactive-waste disposal site in northwestern Illinois (Mills, Patrick C.)

### organic materials—hydrocarbons

*methane:* Microbial methane in the shallow Paleozoic sediments and glacial deposits of Illinois, U.S.A. (Coleman, Dennis D., et al.)

*orogeny see* tectonics

### Ostracoda—taxonomy

*revision:* Revision of the Late Mississippian new ostracode genera in Coryell and Johnson 1939 (Sohn, I. G.)

### oxygen—Isotopes

*O-18/O-16:* A study of the fluid inclusion, stable isotope and mineralogical characteristics of the Denton fluorspar deposit, Cave-in-Rock, Illinois (Koellner, Mark S.)

— Petrology of fault-related diagenetic features in the Paleozoic carbonate rocks of the Plum River fault zone, eastern Iowa and Northwest Illinois (Ludvigson, Gregory Alan)

— Stable isotope systematics in the Illinois-Kentucky fluorspar district (Jones, Henry D.)

— Water-rock interaction history of regionally extensive dolomites of the Burlington-Keokuk Formation (Mississippian); isotopic evidence (Banner, J. L., et al.)



## P

## paleobotany

*gymnosperms*: A new medullosan pollen organ (Stidd, Benton M.)

— Seeds and pollen organs from the Mazon Creek flora of northeastern Illinois (Crane, Peter R.)

*pteridophytes*: Variation in the breadth of ecotones separating three Middle Pennsylvanian coal-swamp plant assemblages (Dimichele, William A.)

## paleoecology—ichnofossils

*Mississippian*: Carbonate petrology, paleoecology, and depositional environments of the Clore Formation (upper Chesterian) in southern Illinois (Abegg, Frederick E.)

## paleoecology—Invertebrates

*Pennsylvanian*: Paleoecology and paleoenvironment of the Brereton Limestone (Pennsylvanian, Desmoinesian) in a portion of the Illinois Basin (Wissinger, Diane E.)

## paleoecology—Paleozoic

*United States*: Early Paleozoic tectonic and sedimentary evolution of the Reelfoot-Rough Creek rift system, Midcontinent, U. S. (Weaverling, Paul Harrison)

## paleoecology—Pennsylvanian

*Perry County*: Vegetational history of the Springfield Coal (Middle Pennsylvanian of Illinois) and distribution patterns of a tree-fern miospore, *Thymospora pseudothiessenii*, based on miospore profiles (Mahaffy, James F.)

*Paleogene* see under stratigraphy under Pulaski County

## paleogeography—Quaternary

*United States*: Soil development and loess stratigraphy of the Midcontinental USA (Norton, L. D., et al.)

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*Bryozoa*: *Strotopora* Ulrich and *Clotrypa* Ulrich and Bassler (Cystoporida, Bryozoa) (Horowitz, Alan Stanley)

*Echinodermata*: Two new multiarmed Mississippian asteroids (Echinodermata) from the Upper Mississippi Valley (Blake, Daniel B.)

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*Invertebrata*: Paleoecology and paleoenvironment of the Brereton Limestone (Pennsylvanian, Desmoinesian) in a portion of the Illinois Basin (Wissinger, Diane E.)

*Mollusca*: A new cephalopod with soft-parts from the Upper Carboniferous Francis Creek Shale of Illinois, USA (Allison, Peter E.)

*problematic fossils*: The naming of the Tully Monster (Konecny, Jim)

## paleontology—practice

*collecting*: Fossil collection serves as link to ancient Paleozoic forests (Harney, Thomas)

*Paleosols* see under clastic sediments under sediments

*Paleozoic* see Devonian; Mississippian; Ordovician; Pennsylvanian; Silurian

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## Palestine Formation

Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

## palynomorphs—miospores

*Pennsylvanian*: Vegetational history of the Springfield Coal (Middle Pennsylvanian of Illinois) and distribution patterns of a tree-fern miospore, *Thymospora pseudothiessenii*, based on miospore profiles (Mahaffy, James F.)

## paragenesis—fluorspar

*Hardin County*: A study of the fluid inclusion, stable isotope and mineralogical characteristics of the Denton fluorspar deposit, Cave-in-Rock, Illinois (Koellner, Mark S.)

## Peddlicord Formation

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*Pennsylvanian* see under stratigraphy under Crawford County; Johnson County; La Salle County; Perry County

## Peoria County—environmental geology

*waste disposal*: Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

## Peoria County—hydrogeology

*ground water*: Evaluation of groundwater monitoring programs at hazardous waste disposal facilities in Illinois (Herzog, Beverly L., et al.)

## Peoria Loess

Absence of Altonian glaciation in Illinois (Curry, B. Brandon)

— Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley (Esling, Steven P., et al.)

— Regional Quaternary geology of western Clark County, Illinois (Curry, B. Brandon, et al.)

— Results of hydrologic research at a low-level radioactive-waste disposal site near Sheffield, Illinois (Ryan, Barbara J.)

— Soil development and loess stratigraphy of the Midcontinental USA (Norton, L. D., et al.)

— Stack unit mapping and Quaternary history Eddyville 7.5 minute quadrangle, southern Illinois (Henderson, Elizabeth Darrow)

— The Quaternary history of the lower Cache River valley, southern Illinois (Hughes, William Brian)

— X-ray technique to evaluate pedon and erosion variability of an Ava map unit (Olson, K. R., et al.)

## Perry County—geophysical surveys

*well-logging*: Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

## Perry County—hydrogeology

*ground water*: Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

## Perry County—soils

*maps*: Soil survey of Perry County, Illinois (Grantham, Dana R.)

## Perry County—stratigraphy

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## petrology

*igneous rocks*: Alnoite intrusions associated with Permian rifting in the New Madrid seismic rift complex (Lewis, Richard D.)

## Peyton Colluvium

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*Phanerozoic* see Devonian; Holocene; Mississippian; Ordovician; Paleogene; Paleozoic; Pennsylvanian; Pleistocene; Quaternary; Silurian

## phase equilibria—magmas

*interpretation*: Natural element and isotope separations by phase transformations (Wetzel, K.)

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## Platt Till Member

Evaluation of five Illinois soils for earthen liners (Su, Wen-June, et al.)

## Plsces—Dipnoi

*Pennsylvanian*: A large, well preserved specimen of the Middle Pennsylvanian lungfish *Conchopoma edesi* (Osteichthyes; Dipnoi) from Mazon Creek, Illinois, U.S.A. (Marshall, Charles R.)

*Plantae* see ferns; gymnosperms; palynomorphs; problematic fossils; pteridophytes

## Platteville Formation

Applied geology of the proposed site for the superconducting super collider (SSC) in Illinois (Kempton, John P., et al.)

— Facies distribution within the Maquoketa and Galena-Platteville groups and their relationship to Ordovician structural history in north-eastern Illinois (Graese, Anne M.)

— Geological program to site the superconducting super collider in Illinois (Leighton, Morris W., et al.)

— Impact of dolomite and shale spoil materials on Illinois water quality: laboratory studies (Krapac, I. G., et al.)

*Pleistocene* see under stratigraphy under Great Lakes region; La Salle County; North America; Tazewell County



## plutonism—Isotopes

### plutonism—Isotopes

*Pu-239*: A preliminary assessment of <sup>239,240</sup>Pu concentrations in a stream near Argonne National Laboratory (Singh, H.)

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*see* under environmental geology under Bond County; Bureau County; Clay County; Cook County; data processing; De Kalb County; Du Page County; Kane County; Kendall County; Lake County; Macoupin County; Madison County; United States

### pollution—ground water

*transport*: Assessing the validity of the channel model of fracture aperture under field conditions (Shapiro, Allen M.)

### Pope County—geomorphology

*fluvial features*: The Cache Valley of southern Illinois (Masters, John M.)

### Porters Creek Formation

Clay mineral segregation by flocculation in the Porters Creek Formation (Thomas, Andrew R.)

— Geochemical conditions during the deposition of the Tertiary Porters Creek Clay determined from its mineralogy and trace fossils (Faulkerson, Joe C.)

### potassium—geochemistry

*sedimentary rocks*: Potassic diagenesis of Cambrian sandstones and Precambrian granitic basement in UPH-3 deep hole, Upper Mississippi Valley, U.S.A. (Duffin, Michael E., et al.)

### potassium—Isotopes

*K-40*: Gamma-ray activity in bituminous, sub-bituminous and lignite coals (Barber, D. E.)

### Potosi Dolomite

Geochemical interactions of hazardous wastes with geological formations in deep-well systems (Roy, W. R., et al.)

### Prairie du Chien Group

Lower Ordovician conodonts from the Shakopee Dolomite (upper Prairie du Chien Group) in southwestern Illinois (Shaw, T. H., et al.)

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### problematic fossils—faunal studies

*Pennsylvanian*: The monster of Illinois; paleontology and politics (Carman, Mary R.)

### problematic fossils—taxonomy

*Pennsylvanian*: The naming of the Tully Monster (Konecny, Jim)

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### Proviso Sandstone

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### pteridophytes *see* ferns

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### pteridophytes—Lycopsidea

*Pennsylvanian*: Small-scale spatial heterogeneity in Pennsylvanian-age vegetation from the roof shale of the Springfield Coal (Illinois Basin) (Dimichele, William A.)

— Variation in the breadth of ecotones separating three Middle Pennsylvanian coal-swamp plant assemblages (Dimichele, William A.)

### Pulaski County—geomorphology

*fluvial features*: The Cache Valley of southern Illinois (Masters, John M.)

### Pulaski County—sedimentary petrology

*sedimentation*: Geochemical conditions during the deposition of the Tertiary Porters Creek Clay determined from its mineralogy and trace fossils (Faulkerson, Joe C.)

### Pulaski County—stratigraphy

*Paleogene*: Paleocene foraminifera from southern Illinois; biostratigraphy and paleoecology (Fluegeman, Richard H., Jr.)

*Quaternary*: Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley (Esling, Steven P., et al.)

— Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley; discussion (Leach, Elizabeth K.)

— Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley; reply (Esling, S. P., et al.)

### Putnam County—environmental geology

*reclamation*: Illinois barren longwall mine waste, fifty years after abandonment (Szafoni, Diane, et al.)

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### Racine Dolomite

The Silurian reef at Thornton, Illinois (Mikulic, Donald G.)

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### Randolph County—economic geology

*petroleum*: Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

### Randolph County—geophysical surveys

*well-logging*: Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

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*ground water*: Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

### Randolph County—sedimentary petrology

*sedimentary rocks*: Carbonate petrology, paleoecology, and depositional environments of the

Clare Formation (upper Chesterian) in southern Illinois (Abegg, Frederick E.)

### Randolph County—soils

*maps*: Soil survey of Randolph County, Illinois (Miles, C. C.)

### Randolph County—stratigraphy

*Mississippian*: Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

*reclamation* *see* conservation; land use; pollution *see* under environmental geology under Bureau County; Marshall County; Putnam County *see* under environmental geology

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### Reelfoot Arkose

Early Paleozoic tectonic and sedimentary evolution of the Reelfoot-Rough Creek rift system, Midcontinent, U. S. (Weaverling, Paul Harrison)

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### Robeln Silt

Absence of Altonian glaciation in Illinois (Curry, B. Brandon)

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### rock mechanics—materials, properties

*engineering properties*: Engineering properties and clay mineralogy of Illinois coal-mine roof shales and underclays (Tangchawal, Sanga) *hydraulic conductivity*: Assessing the validity of the channel model of fracture aperture under field conditions (Shapiro, Allen M.)

### rock mechanics—site exploration

*superconducting super collider*: Geological-geotechnical studies for siting the superconducting super collider in Illinois; regional summary (Graese, A. M., et al.)

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— Regional Quaternary geology of western Clark County, Illinois (Curry, B. Brandon, et al.)

— Sedimentological, pedogenic, pollen, and microfauna records of the Sangamonian Stage and Altonian Substage (early Wisconsinan) in Illinois (Curry, B. Brandon)

— Source and origin of Roxana Silt and middle Wisconsinan midcontinent glacial activity (Johnson, W. Hilton)

— Stack unit mapping and Quaternary history Eddyville 7.5 minute quadrangle, southern Illinois (Henderson, Elizabeth Darrow)



- The Quaternary history of the lower Cache River valley, southern Illinois (Hughes, William Brian)
- X-ray technique to evaluate pedon and erosion variability of an Ava map unit (Olson, K. R., et al.)

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- soils*: Rubidium in surface horizons of Illinois soils (Jones, Robert L.)

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#### Saint Clair County—economic geology

- water resources*: Groundwater level analysis by computer modeling American Bottoms groundwater study (Ritchey, Joseph D., et al.)

#### Saint Francois Formation

- Early Paleozoic tectonic and sedimentary evolution of the Reelfoot-Rough Creek rift system, Midcontinent, U. S. (Weaverling, Paul Harrison)

#### Saint Peter Sandstone

- Origin of pyrite nodules in the St. Peter Sandstone, Buffalo Rock State Park, Illinois (Kirchner, James Gary)
- Shatter cones and other shock effects at Des Plaines, Illinois; evidence for meteoroid impact (McHone, John F., et al.)
- Starved Rock, Illinois (Kolata, Dennis R.)

#### Sainte Genevieve Limestone

- Depositional facies analysis of the Aux Vases (Mississippian) Formation from southeastern Missouri to southeastern Illinois (Cole, Robert D.)
- Variables controlling permeability of oolitic calcarenites of the Ste. Genevieve Limestone (Mississippian), southern Illinois (Hiseler, Robert B.)

#### Salem Limestone

- Burial depth, lithofacies, and stylolite density in the Salem Limestone, Illinois Basin (Losonsky, G.)

#### Saline County—economic geology

- oil and gas fields*: Typical stratigraphic entrapment in southern Illinois (Avila, John)

#### Saline County—structural geology

- faults*: Horseshoe Quarry, Shawneetown fault zone, Illinois (Nelson, W. John)

#### Scott County—soils

- maps*: Soil survey of Morgan and Scott counties, Illinois (Gotsch, K. A.)

#### sea-level fluctuations see changes of level

#### sedimentary petrology

- clay mineralogy*: Clay mineral segregation by flocculation in the Porters Creek Formation (Thomas, Andrew R.)
- The influence of disaggregation methods on X-ray diffraction of clay minerals (Huang, Scott L.)
- diagenesis*: Diagenetic features in transgressive limestones suggest minor regressions in Upper Pennsylvanian cyclothem, Illinois Basin (Weibel, C. Pius)
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*sedimentary rocks*: Coal deposition in the cratonic Illinois Basin; evidence for tectonic control of sedimentation (Eggert, Donald L.)

— Facies, depositional and diagenetic environments of the Golconda Group (Mississippian) in southwestern Illinois and southeastern Missouri (Harris, Clayton D.)

— Origin of pyrite nodules in the St. Peter Sandstone, Buffalo Rock State Park, Illinois (Kirchner, James Gary)

— Regional dolomitization of shelf carbonates in the Burlington-Keokuk Formation (Mississippian), Illinois and Missouri; constraints from cathodoluminescent zonal stratigraphy (Cander, H. S., et al.)

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— Variables controlling permeability of oolitic calcarenites of the Ste. Genevieve Limestone (Mississippian), southern Illinois (Hiseler, Robert B.)

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*environmental analysis*: Silurian seascapes; water depth, clinothems, reef geometry, and other motifs; a critical review of the Silurian reef model (Shaver, Robert H.)

*limestone*: Regional dolomitization of shelf carbonates in the Burlington-Keokuk Formation (Mississippian), Illinois and Missouri; constraints from cathodoluminescent zonal stratigraphy (Cander, H. S., et al.)

*outcrops*: The Silurian reef at Thornton, Illinois (Mikulic, Donald G.)

#### sedimentary rocks—chemically precipitated rocks

*chert*: Origin of cherts in the Burlington Limestone (lower Middle Mississippian) of southeastern Iowa and western Illinois (Seigley, Lynette Sue)

#### sedimentary rocks—clastic rocks

*arenite*: Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

*reservoir properties*: Hydrocarbon accumulation in a paleovalley at Mississippian-Pennsylvanian unconformity near Hardinville, Crawford County, Illinois; a model paleogeomorphic trap (Howard, R. H.)

*sandstone*: St. Peter Sandstone; a closer look; discussion and reply (Johnson, C. B., et al.)

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*pyrite*: Origin of pyrite nodules in the St. Peter Sandstone, Buffalo Rock State Park, Illinois (Kirchner, James Gary)

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*environmental analysis*: Carbonate petrology, paleoecology, and depositional environments of the Clore Formation (upper Chesterian) in southern Illinois (Abegg, Frederick E.)

— Facies, depositional and diagenetic environments of the Golconda Group (Mississippian) in southwestern Illinois and southeastern Missouri (Harris, Clayton D.)

— Fluvial-deltaic deposits (Caseyville and Abbott formations) of Early Pennsylvanian age exposed along the Pounds Escarpment, southern Illinois (Jacobson, Russell J.)

#### sedimentary rocks—lithostratigraphy

*Paleozoic*: Geologic features near Grand Tower, Illinois; the Devil's Backbone, the Devil's Bake Oven, and Fountain Bluff (Fraunfelder, George H.)

— Valmeyer Anticline of Monroe County, Illinois (Norby, Rodney D.)

#### sedimentary rocks—organic residues

*coal*: Coal deposition in the cratonic Illinois Basin; evidence for tectonic control of sedimentation (Eggert, Donald L.)

— Gamma-ray activity in bituminous, sub-bituminous and lignite coals (Barber, D. E.)

— Minerals in bituminous coals of the Sydney Basin (Australia) and the Illinois Basin (U.S.A.) (Ward, Colin R.)

*macerals*: Micromechanical properties of coal maceral surfaces (Kopp, O. C., et al.)

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#### sedimentary structures—planar bedding structures

*cyclothems*: Cyclothems in the Carbondale Formation (Pennsylvanian; Desmoinesian Series) of La Salle County, Illinois (Trask, C. Brian)

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#### sedimentation—controls

*tectonic controls*: Structural controls on the formation of the sub-Absaroka unconformity in the U.S. Eastern Interior basin (Greb, Stephen F.)

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*fluvial environment*: Analysis of the Cache Valley deposits in Illinois and implications regarding the late Pleistocene-Holocene development of the Ohio River valley (Esling, Steven P., et al.)

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*lacustrine environment*: A new method for estimating future reservoir storage capacities (Singh, Krishan P.)

— Suspended sediment and metals removal from urban runoff by a small lake (Striegl, Robert G.)

— The need for a systematic lake sedimentation survey program in Illinois (Bhowmik, Nani G.)

*reefs*: Silurian seascapes; water depth, clinothems, reef geometry, and other motifs; a critical review of the Silurian reef model (Shaver, Robert H.)

*rift zones*: Early Paleozoic tectonic and sedimentary evolution of the Reelfoot-Rough Creek rift system, Midcontinent, U. S. (Weaverling, Paul Harrison)

## sedimentation—processes

*glaciolacustrine sedimentation*: Age, stratigraphic position, and significance of the Lemont Drift, northeastern Illinois (Johnson, W. Hilton)

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*fluvial sedimentation*: Sedimentation in the Illinois River valley and backwater lakes (Bhowmik, Nani G.)

*lacustrine sedimentation*: Sedimentation and hydrologic processes in Lake Decatur and its watershed (Fitzpatrick, William P., et al.)

## sedimentation—transport

*glacial transport*: Source and origin of Roxana Silt and middle Wisconsinan midcontinent glacial activity (Johnson, W. Hilton)

*stream transport*: Runoff and land modification (Gray, John R.)

*wind transport*: Atmospheric deposition of  $^7\text{Be}$  and  $^{10}\text{Be}$  (Brown, Louis, et al.)

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*drift*: Age, stratigraphic position, and significance of the Lemont Drift, northeastern Illinois (Johnson, W. Hilton)

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*metals*: Suspended sediment and metals removal from urban runoff by a small lake (Striegl, Robert G.)

*organic materials*: Evaluating bioavailability of neutral organic chemicals in sediments; a confined disposal facility case study (Clarke, Joan U., et al.)

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*Pleistocene*: Farm Creek, central Illinois; a notable Pleistocene section (Follmer, Leon R.)

*Quaternary*: Stack unit mapping and Quaternary history Eddyville 7.5 minute quadrangle, southern Illinois (Henderson, Elizabeth Darrow)

*seismic surveys* *see* under geophysical surveys

*see* under geophysical surveys under Kane County

*selsmology* *see* engineering geology

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*earthquakes*: A preliminary report on the variability in the particle velocity recordings of the June 10, 1987 southeastern Illinois earthquake (Street, R., et al.)

— The June 1987 southeastern Illinois earthquake; possible tectonism associated with the La Salle anticlinal belt (Hamburger, M. W.)

*microearthquakes*: The Cairo, Illinois earthquake swarm of 1983-1984 (Taylor, K. B.)

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*networks*: A preliminary report on the variability in the particle velocity recordings of the June 10, 1987 southeastern Illinois earthquake (Street, R., et al.)

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*seismotectonics*: Evidence of late Cenozoic activity along the Bolivar-Mansfield tectonic zone, Midcontinent, USA (Cox, Randel Tom)

## Shakopee Dolomite

Lower Ordovician conodonts from the Shakopee Dolomite (upper Prairie du Chien Group) in southwestern Illinois (Shaw, T. H., et al.)

*shorelines* *see* under engineering geology

*see* under engineering geology under Cook County; Lake County

## Shorewood Till Member

The Shorewood Till problem of Illinois and Wisconsin (Rovey, C. W., II)

## Shumway Limestone

Stratigraphy, depositional history, and brachiopod paleontology of Virgilian strata of east-central Illinois (Weibel, Carl Pius)

*silt* *see* under clastic sediments under sediments

*Silurian* *see* under stratigraphy under Cook County; Kankakee County; Will County

*slope stability* *see* geomorphology

*see* under engineering geology under Iroquois County; Williamson County

## Smithboro Till Member

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## Snider Member

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*soil mechanics* *see* rock mechanics; underground installations

## soil mechanics—frost action

*models*: Seasonal ground frost occurrence; developing a statistically-based predictive model (Loewenherz, Deborah S.)

## soil mechanics—materials, properties

*engineering properties*: Engineering properties and clay mineralogy of Illinois coal-mine roof shales and underclays (Tangchawal, Sanga)

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*conservation*: Soil diversity and the effects of field eligibility rules in implementing soil conservation programs targeted to highly erodible land (Padgett, Merritt)

*geochemistry*: Evaluation of nitrogen-15 tracer techniques for direct measurement of denitrification in soil; IV, Field studies (Molvany, R. L.)

*morphology*: Loessial soils; their relationship to width of the source valley in Illinois (Putman, B. R., et al.)

— Rubidium in surface horizons of Illinois soils (Jones, Robert L.)

*pedogenesis*: Fragipan formation in loess of the Midwestern United States (Franzmeier, D. P., et al.)

*soil erosion*: Chemical, mineralogical, and physical property differences between moderately and severely eroded Illinois soils (Nizeyimana, E.)

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*Brown County*: Soil survey of Brown County, Illinois (Berning, G. V.)

*Bureau County*: Distribution of gases in the unsaturated zone at a low-level radioactive-waste disposal site near Sheffield, Illinois (Striegl, Robert G.)

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- Fragipan formation in loess of the Midwestern United States (Franzmeier, D. P., et al.)
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- Soil diversity and the effects of field eligibility rules in implementing soil conservation programs targeted to highly erodible land (Padgett, Merritt)
- Stratigraphy and magnetic susceptibility of a multiple loess-Paleosol section, Pancake Hollow, west-central Illinois, U.S.A. (Hajic, Edwin R., et al.)
- Upland erosion and downstream sediment delivery (Stall, John B.)
- Morgan County*: Soil survey of Morgan and Scott counties, Illinois (Gotsch, K. A.)
- Perry County*: Soil survey of Perry County, Illinois (Grantham, Dana R.)
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- United States*: Simulated climate data inputs for DRAINMOD (Robbins, Kevin Douglas)
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- Williamson County*: X-ray technique to evaluate pedon and erosion variability of an Ava map unit (Olson, K. R., et al.)

#### Spechts Ferry Shale Member

- Nature and origin of potassic alteration of the Ordovician Spechts Ferry Formation in the Upper Mississippi Valley (Matthews, James Coert)

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#### Spoon Formation

- Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)
- Vegetational history of the Springfield Coal (Middle Pennsylvanian of Illinois) and distribution patterns of a tree-fern miospore, *Thymospora pseudothiessenii*, based on miospore profiles (Mahaffy, James F.)

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#### Springfield Coal Member

- Coal data available on-line at the Illinois Geological Survey (Trask, C. Brian)
- Small-scale spatial heterogeneity in Pennsylvanian-age vegetation from the roof shale of the Springfield Coal (Illinois Basin) (Dimichele, William A.)
- Vegetational history of the Springfield Coal (Middle Pennsylvanian of Illinois) and distribution patterns of a tree-fern miospore, *Thymospora pseudothiessenii*, based on miospore profiles (Mahaffy, James F.)

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#### Stephenson County—engineering geology

- rock mechanics*: Microcrack study of Illinois granite from deep borehole UPH-2 (Jang, B. A.)

#### Stephenson County—sedimentary petrology

- diagenesis*: Potassic diagenesis of Cambrian sandstones and Precambrian granitic basement in UPH-3 deep hole, Upper Mississippi Valley, U.S.A. (Duffin, Michael E., et al.)

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- archaeology*: Comparison of archeomagnetic studies of suspected hearths from Koobi Fora, Africa with known hearths from Modoc, IL (Bellomo, R. J.)

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*catalogs*: Catalog of cores from the sub-Galena Group in Illinois (Shaw, Thomas H.)

*Devonian*: Onondaga Indian Nation and Kawkawlin metabentonites in surface Middle Devonian (late Onesquethawan) Grand Tower Formation of central Illinois (Conkin, James E.)

*Holocene*: Prehistoric settlement and Holocene environmental change in the Tonica region, north-central Illinois (Warren, Robert E.)

- Reconstructed hydrological parameters of the Mississippi River since the mid-1800s from tree rings (Wendland, Wayne M.)

*maps*: Stack unit mapping and Quaternary history Eddyville 7.5 minute quadrangle, southern Illinois (Henderson, Elizabeth Darrow)

- Stack-unit mapping of geologic materials in Illinois to a depth of 15 meters (Berg, Richard C.)

*Mississippian*: Burial depth, lithofacies, and stylolite density in the Salem Limestone, Illinois Basin (Losonsky, G.)

- Depositional facies analysis of the Aux Vases (Mississippian) Formation from southeastern Missouri to southeastern Illinois (Cole, Robert D.)

- Mississippian-Pennsylvanian boundary, southern Midcontinent; conformity or disconformity; conodont biofacies or biostratigraphy? (Manger, Walter L.)

*Ordovician*: Facies distribution within the Maquoketa and Galena-Platteville groups and their relationship to Ordovician structural history in northeastern Illinois (Graese, Anne M.)

*Paleozoic*: Catalog of cores from the sub-Galena Group in Illinois (Shaw, Thomas H.)

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- Paleocology applied to coal geology; the relationship of the distribution of biofacies in the Brereton Limestone Member (Carbondale Formation, Middle Pennsylvanian) to variability in coal-mine roof strata, southwestern Illinois (Utgaard, John E., et al.)
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*Pleistocene*: Absence of Altonian glaciation in Illinois (Curry, B. Brandon)

- Fluctuations of the Late Wisconsinan (Woodfordian) Lake Michigan lobe in Illinois, U.S.A. (Johnson, W. Hilton)

- Paleoenvironment of some invertebrates (molluscs and beetles) from the Tonica thermokarst, north-central Illinois (Frest, Terrence J.)

- Sedimentological, pedogenic, pollen, and microfauna records of the Sangamonian Stage and Altonian Substage (early Wisconsinan) in Illinois (Curry, B. Brandon)

- Source and origin of Roxana Silt and middle Wisconsinan midcontinent glacial activity (Johnson, W. Hilton)

- Stratigraphy and magnetic susceptibility of a multiple loess-Paleosol section, Pancake Hollow, west-central Illinois, U.S.A. (Hajic, Edwin R., et al.)

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- Stack unit mapping and Quaternary history Eddyville 7.5 minute quadrangle, southern Illinois (Henderson, Elizabeth Darrow)

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- Silurian pinnacle reef distribution in Illinois; model for hydrocarbon exploration (Whitaker, Stephen T.)

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#### strontium—Isotopes

- Sr-87/Sr-86*: Water-rock interaction history of regionally extensive dolonites of the Burlington-Keokuk Formation (Mississippian); isotopic evidence (Banner, J. L., et al.)

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*tectonics*: Tectonic history of the Illinois Basin; an overview (Kolata, Dennis R., et al.)

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#### sulfur—Isotopes

- S-34/S-32*: Petrology of fault-related diagenetic features in the Paleozoic carbonate rocks of the Plum River fault zone, eastern Iowa and Northwest Illinois (Ludvigson, Gregory Alan)

- Stable isotope systematics in the Illinois-Kentucky fluorspar district (Jones, Henry D.)

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## survey organizations—current research

*Illinois State Geological Survey*: Geologic applications of an extensive GIS database; examples from Illinois (Krumm, Robert R., et al.)

— The Illinois Basin Coal Sample Program; status and sample characterization (Harvey, Richard D.)

*U. S. Geological Survey*: Water-resources activities of the U.S. Geological Survey in Illinois, 1988 (Garrelts, Mary L.)

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### Tioga Bentonite

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### Toledo Formation

Stratigraphy, depositional history, and brachiopod paleontology of Virgilian strata of east-central Illinois (Weibel, Carl Pius)

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*water*: Water and tritium movement in the saturated zone (Healy, Richard W., et al.)

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### Union County—economic geology

*petroleum*: Petrography and reservoir properties of Chesterian (Upper Mississippian) arenites, southern Illinois (Carozzi, Albert V.)

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*lead-zinc deposits*: Galena from mississippi valley-type deposits (Lasmanis, Raymond)

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*earthquakes*: Seismic hazard assessment in the central United States (Johnston, Arch C.)

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*water regimes*: Simulated climate data inputs for DRAINMOD (Robbins, Kevin Douglas)

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### United States—structural geology

*tectonics*: Early Paleozoic tectonic and sedimentary evolution of the Reelfoot-Rough Creek rift system, Midcontinent, U. S. (Weaverling, Paul Harrison)

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### Wadsworth Till Member

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### Waltersburg Formation

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### Wedron Formation

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— The Shorewood Till problem of Illinois and Wisconsin (Rovey, C. W., II)

— Wedron section, Wedron, Illinois; concepts of Woodfordian glaciation in Illinois (Johnson, W. Hilton, et al.)

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### well-logging—electrical logging

*interpretation*: Use of geophysical logs to estimate water quality of basal Pennsylvanian sandstones, southwestern Illinois (Poole, V. L., et al.)

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*interpretation*: Comparison of spectral gamma ray (SGR) well logging data with instrumental neutron activation analysis (INAA) data for rock types in northern Illinois (Gendron, Craig R., et al.)

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*conservation*: Groundwater management in northeastern Illinois; will a non-regulatory approach be successful? (Injerd, Dan)

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*Silurian:* Ordovician-Silurian unconformity at Kankakee River State Park, Illinois (Mikulic, Donald G.)

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